

What is claimed is:

1. A method for treating a contaminated gas stream, the gas stream comprising one or more contaminants, comprising:
 - combusting a feed material, to produce a contaminated gas stream;
 - comminuting a plurality of sorbent particles having a first size distribution to form
 - 5 comminuted sorbent particles having a second size distribution, wherein the second size distribution is smaller than the first size distribution and wherein the comminuting step occurs on-site with a plant in which the feed material is combusted; and
 - thereafter introducing the comminuted sorbent particles into the gas stream to remove the one or more contaminants.
2. The method of claim 1, wherein the comminuting step is performed in a jet mill.
3. The method of claim 1, wherein the one or more contaminants comprise an air toxic and wherein the time between the completion of the comminution step to the introducing step is no more than about 30 seconds.
4. The method of claim 1, wherein the sorbent is activated carbon.
5. The method of claim 3, wherein the air toxic is at least one of nickel, arsenic, chromium, mercury, selenium, lead, a halogen, and a halide.

6. The method of claim 1, wherein the first size distribution has a P_{90} size ranging from about 10 microns to about 1 millimeter and the second size distribution has a P_{90} size ranging from about 0.5 to about 25 microns.

7. The method of claim 1, wherein, in the comminuting step, the size reduction factor ranges from about 5 to about 200.

8. The method of claim 1, wherein the comminuted sorbent is not stored before the introducing step.

9. The method of claim 1, wherein the comminuting step comprises:
entraining the sorbent particles in a high velocity fluid stream; and
impacting the sorbent particles at the velocity of the fluid stream against at least one of another particle and a stationary comminution surface to effect size reduction.

10. A system for treating a contaminated gas stream, the contaminated gas stream comprising one or more contaminants, comprising:

a comminution device operable to effect size reduction of a plurality of sorbent particles and form a plurality of comminuted particles;

5 a plurality of nozzles distributed through the gas stream and operable to introduce the plurality of comminuted particles into the gas stream; and

a particle removal device operable to remove at least most of the introduced comminuted particles and form a treated gas stream, wherein the comminution device is in direct fluid communication with the plurality of nozzles and the plurality of sorbent
10 comminuted particles are able to remove the one or more contaminants.

11. The system of claim 10, wherein the comminution device is a jet mill.

12. The system of claim 10, wherein the one or more contaminants comprise an air toxic.

13. The system of claim 10, wherein the sorbent is activated carbon.

14. The system of claim 12, wherein the air toxic is at least one of nickel, arsenic, chromium, mercury, selenium, lead, a halogen, and a halide.

15. The system of claim 10, wherein the sorbent particles before comminution have a P_{90} size ranging from about 10 microns to about 1 millimeter and, after comminution, a P_{90} size ranging from about 0.5 to about 25 microns.

16. The system of claim 10, wherein, in the comminution device, the size reduction factor ranges from about 5 to about 200.

17. The system of claim 10, wherein the particle removal device, nozzles, and comminution device are located at the end user site.

18. The system of claim 1, wherein the comminution device entrains the sorbent particles in a high velocity fluid stream and impacts the sorbent particles at the velocity of the fluid stream against at least one of another particle and a stationary comminution surface to effect size reduction.

19. A system for treating a contaminated gas stream, the gas stream comprising one or more contaminants, comprising:
- means for providing a plurality of sorbent particles having a first size distribution;
- means for comminuting the sorbent particles to form comminuted sorbent particles
- 5 having a second size distribution, the second size distribution being smaller than the first size distribution; and
- means for thereafter introducing the comminuted sorbent particles into the gas stream to remove the one or more contaminants, wherein the time between the completion of the comminution step to the introducing step is no more than about 1 hour.
20. The system of claim 19, wherein the comminuting means is a jet mill.
21. The system of claim 19, wherein the one or more contaminants comprise an air toxic.
22. The system of claim 19, wherein the sorbent is activated carbon.
23. The system of claim 21, wherein the air toxic is at least one of nickel, arsenic, chromium, mercury, selenium, lead, a halogen, and a halide.

24. The system of claim 19, wherein the first size distribution has a P_{90} size ranging from about 10 microns to about 1 millimeter and the second size distribution has a P_{90} size ranging from about 0.5 to about 25 microns.

25. The system of claim 19, wherein the size reduction factor of the comminuting means ranges from about 5 to about 200.

26. The system of claim 19, wherein the comminuted sorbent is not stored before being introduced into the contaminated gas stream.

27. The system of claim 19, wherein the comminuting function comprises:
entraining the sorbent particles in a high velocity fluid stream; and
impacting the sorbent particles at the velocity of the fluid stream against at least one of another particle and a stationary comminution surface to effect size reduction.